

## P. INT COOPERATION TREA

From the INTERNATIONAL BUREAU

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C.20231  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing:

13 July 2000 (13.07.00)

International application No.:

PCT/EP99/09590

Applicant's or agent's file reference:

C3890(C)/sje

International filing date:

06 December 1999 (06.12.99)

Priority date:

05 January 1999 (05.01.99)

Applicant:

BIJSTERBOSCH, Henri, Derk et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International preliminary Examining Authority on:

20 April 2000 (20.04.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer:

J. Zahra

Telephone No.: (41-22) 338.83.38

# ATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>C3890(C)/sje</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, Item 5 below.	
International application No. <b>PCT/EP 99/ 09590</b>	International filing date (day/month/year) <b>06/12/1999</b>	(Earliest) Priority Date (day/month/year) <b>05/01/1999</b>
Applicant <b>UNILEVER PLC et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

## INTERNATIONAL SEARCH REPORT

National Application No

PCT/EP 99/09590

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C11D3/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 197834 Derwent Publications Ltd., London, GB; Class A97, AN 1978-61587A XP002133480 HERCULES INC: "Guar gum anti-redeposition agent in liquid detergents - for washing soiled cloths e.g. of polyester-cotton" abstract & RESEARCH DISCLOSURE, vol. 172, no. 011, 10 August 1978 (1978-08-10), Emsworth, GB  —  -/-	6-9



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

20 March 2000

Date of mailing of the international search report

31/03/2000

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/09590

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 197614 Derwent Publications Ltd., London, GB; Class A97, AN 1976-25315X XP002133481 & JP 51 020203 A (UNITIKA LTD), 18 February 1976 (1976-02-18) abstract	6-9
X	US 4 661 267 A (DEKKER BOB ET AL) 28 April 1987 (1987-04-28) column 1; claims; examples	6-9
X	DE 29 25 859 A (HENKEL KGAA) 22 January 1981 (1981-01-22) page 7 -page 9; claims	6-9
X	GB 2 039 556 A (UNILEVER LTD) 13 August 1980 (1980-08-13) page 2; claims	6-9
X	DE 35 31 756 A (COLGATE PALMOLIVE CO) 13 March 1986 (1986-03-13) page 24; claims	6-9
X	US 4 179 382 A (CLINT JOHN H ET AL) 18 December 1979 (1979-12-18) cited in the application column 5 -column 7; claims; examples	1-9
X	WO 91 09106 A (PROCTER & GAMBLE) 27 June 1991 (1991-06-27) page 18; claims page 28 -page 29	4,5,8,9
X	DATABASE WPI Section Ch, Week 199922 Derwent Publications Ltd., London, GB; Class A87, AN 1999-256333 XP002133482 & DK 9 801 395 A (NOVO-NORDISK AS), 20 November 1998 (1998-11-20) abstract	1-9

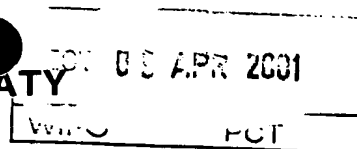
# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14




Applicant's or agent's file reference C3890(C)/sje	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/09590	International filing date (day/month/year) 06/12/1999	Priority date (day/month/year) 05/01/1999
International Patent Classification (IPC) or national classification and IPC C11D3/22		
Applicant UNILEVER PLC et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  20/04/2000	Date of completion of this report  04.04.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Pfannenstein, H  Telephone No. +49 89 2399 8217



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/09590

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

2,6-22	as originally filed	
1,3,3a,4,5	with telefax of	18/12/2000

### Claims, No.:

1-4	with telefax of	18/12/2000
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/09590

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims
	No:	Claims 1-4
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-4
Industrial applicability (IA)	Yes:	Claims 1-4
	No:	Claims

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**Re Item V**

- 1) Reference is made to the following documents:

D1 Research disclosure 172011 (WPI / Derwent abstract)  
D2 JP-A-51020203 (WPI / Derwent abstract)  
D8 WO-A-9109106

- 2) The terms "reducing visible surface damage" and "neutral" in claim 1 are not disclosed in the original application.

The term neutral is interpreted by uncharged as mentioned at page 4.

Soil is a visible damage on fabrics. Washing laundry means removing soil from the surface of a fabric.

- 3) However, the term uncharged (neutral) modified polysaccharides does not limit to only hydrolysed polymers.

Guar gum and hydroxyl ethyl ether mannan are regarded as uncharged polysaccharides comprising beta 1-4 glycosidic linkages.

The term "to confer a benefit to a fabric..." is quite general. The examples show antipilling, effects on coloured fabrics and clay removal using hydrolysed locust bean gum.

- 4) D1 describes a method for washing fabrics using guar gum as soil anti redeposition agent in conventional laundry detergent compositions, i.e. it confers a benefit to the fabrics (improved whiteness). Claim 1 differs from D1 in claim 1 polysaccharides of low molecular weight have been specified.

In D1 no MG is disclosed.

In example 6 native locust bean gum and konjac glucomannan, probably also native, appear to show the same pilling effect than degraded polymers. A difference has been shown in example 6 which relates just to clay soil removal. An effect over the whole claimed range has not been demonstrated.

Thus the subject-matter of the claims 1-4 is not inventive (Article 33(3) PCT).



D2 describes a method for washing fabrics using hydroxy alkyl ether mannan as soil anti redeposition agent in conventional laundry detergent compositions, i.e. it confers a benefit to the fabrics (improved whiteness). Claim 1 differs from D2 in that polysaccharides of low molecular weight (MG) have been specified.

By producing hydroxy alkyl ether saccharides lower MG than those of the natural polymers are received. An effect over D2 has not been made credible. According to the Applicant the polymers are only modified by digestion to reduce MG. However claim 1 is not restricted to such polymers, an effect over the whole claimed range is, therefore, not given.

In example 6 native locust bean gum and konjac glucomannan, probably also native, appear to show the same pilling effect than degraded polymers. A difference has been shown in example 6 which relates just to clay soil removal. Thus the subject-matter of the claims 1-4 is not inventive (Article 33(3) PCT).

#### **Point VIII**

- 1) There is an inconsistency between the claims and the description. At page 4, par. 3 the terms "preferably" and "anionic" have not been deleted.
- 2) According to the Applicant the polymers are only modified by digestion to reduce MG which is essential to the definition of the invention.  
The method is used during laundering, i.e. a surfactant must be present which is essential to the definition of the invention.  
Since independent claim 1 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

## Treatment for Fabrics

### Technical Field

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The present invention relates to an oligomeric or polymeric material for deposition onto a fabric to endow a fabric care or other benefit to the fabric.

### Background of the Invention

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It is known to use polysaccharide gums having a  $\beta_{1-4}$  linkage (hereinafter referred to as  $\beta$ -1,4-polysaccharides) as ingredients in detergent compositions, e.g. guar gum when used as a thickener in bleach compositions and liquid fabric washing compositions, and as additives to detergent powders e.g. to improve the structural and/or free-flowing properties of the powders.

15

It is also known to use various different materials in laundry products for colour care, e.g. to reduce the fading of coloured dyes in the fabric due to repeated washes.

20

It is has now been found by the applicants that surprisingly,  $\beta_{1-4}$  polysaccharides also are useful in detergent products for fabric care benefits such as colour care performance, as well as anti-pilling. Unfortunately, at the levels required for this purpose, the applicants have noticed a negative in terms of enhanced staining with particulate stains on the fabric.

25

This problem has now been overcome by modifying the naturally occurring polysaccharides that their weight average molecular weight is 250,000 or less.

weight of 50,000 - 100,000,000 preferably 100,000 - 500,000, especially 250,000 - 400,000 to improve the feel of toilet bars based on alkali metal soaps. According to EP-A-227 321, the mildness of soap bars is improved using a hydrated cationic polymeric polysaccharide having from 5-6 saccharide units on average. Another soap  
5 bar containing a cationic polysaccharide having a molecular weight of 1,000 - 3,000,000, preferably 2,500 - 350,000 is disclosed in US-A-5 064 555.

US-A-4 179 382 discloses a textile softening agent which includes a cationic salt which optionally may be a cationic polysaccharide, e.g. having a molecular weight of 220,000.  
10

However, none of the aforementioned reference discloses a modified low molecular weight naturally occurring polysaccharide as useful for conferring care benefits in fabric treatment products, e.g. for use in the wash and/or rinse.

15

#### Definition of the Invention

The present invention provides use of polysaccharide gum having  $\beta_{1-4}$  linkages to confer a benefit to a fabric during the laundering thereof, in particular a naturally occurring  
20 such polysaccharide. However, preferably the polysaccharide is a modified naturally occurring polysaccharide gum having  $\beta_{1-4}$  linkages, the modified polysaccharide having a weight average molecular weight of 250,000 or less, preferably 100,000 or less, more preferably 75,000 or less.

#### 25 Detailed Description of the Invention

Preferably, the weight average molecular weight of the modified polysaccharide is 100,000 or less, more preferably 75,000 or less.

The molecular weight of the naturally occurring polysaccharide may be reduced by a number of different means, for example by enzymatic cleavage, using an appropriate enzyme such as a cellulase, or mannanase, or by acid hydrolysis, or any other method known in the art. The enzymatic degradation of xyloglucan is disclosed in US 3 480

5 511. Preferred cellulases include those sold under Trade Marks Celluzyme, Endolase, Carezyme and Puradax.

Typical polysaccharide gums which may be used unmodified or modified, for use in detergent compositions or other treatment products, include galactomannan (e.g. derived from locust bean gum or guar gum), glucomannan (e.g. Konjac glucomannan) xanthan  
10 gum and xyloglucan (e.g. tamarind xyloglucan), and mixtures thereof.

Preferably, the polysaccharide is uncharged or is anionic.

15

### Compositions

The polysaccharide may be incorporated into compositions containing only a diluent (which may comprise solid and/or liquid) and/or also comprising an active ingredient.

20 The polysaccharide is typically included in said compositions at levels of from 0.01% to 25% by weight, preferably from 0.1% to 20%, e.g. from 0.5% to 20%, most preferably from 0.2% to 5%. Another preferred range is from 1% to 15%.

Although the modified forms are preferred in some cases, it may be advantageous to use  
25 unmodified naturally occurring polysaccharides in detergent compositions. Thus, another aspect of the present invention provides a detergent composition comprising a polysaccharide gum having  $\beta_{1-4}$  linkages, in particular a modified naturally occurring polysaccharide as hereinbefore defined.

The active ingredient in the compositions is preferably a surface active agent or a fabric conditioning agent. More than one active ingredient may be included. For some applications a mixture of active ingredients may be used.

- 5    The compositions of the invention may be in any physical form e.g. a solid such as a powder or granules, a tablet, a solid bar, a paste, gel or liquid, especially, an aqueous based liquid.

- 10    The compositions of the present invention are preferably laundry compositions, especially main wash (fabric washing) compositions or rinse-added softening compositions. The main wash compositions may include a fabric softening agent and rinse-added fabric softening compositions may include surface-active compounds, particularly non-ionic surface-active compounds, if appropriate.

- 15    The detergent compositions of the invention may contain a surface-active compound (surfactant) which may be chosen from soap and non-soap anionic, cationic, non-ionic, amphoteric and zwitterionic surface-active compounds and mixtures thereof. Many suitable surface-active compounds are available and are fully described in the literature, for example, in "Surface-Active Agents and Detergents", Volumes I and II, by Schwartz,  
20    Perry and Berch.

The preferred detergent-active compounds that can be used are soaps and synthetic non-soap anionic and non-ionic compounds.

- 25    The compositions of the invention may contain linear alkylbenzene sulphonate, particularly linear alkylbenzene sulphonates having an alkyl chain length of C<sub>8</sub>-C<sub>15</sub>. It is preferred if the level of linear alkylbenzene sulphonate is from 0 wt% to 30 wt%, more preferably 1 wt% to 25 wt%, most preferably from 2 wt% to 15 wt%.

**CLAIMS:**

1. Use of a modified naturally occurring polysaccharide gum having  $\beta_{1-4}$  linkages,  
5 the modified polysaccharide having a weight average molecular weight of 250,000 or less, preferably 100,000 or less, more preferably 75,000 or less, to confer a benefit to a textile fabric during laundering thereof.
2. Use according to claim 1, wherein the modified polysaccharide is derived from a  
10 naturally occurring polysaccharide selected from galactomannan (e.g. derived from locust bean gum or guar gum), glucomannan (e.g. Konjac glucomannan), xyloglucan (e.g. tamarind xyloglucan), xanthan gum and mixtures thereof.
3. Use according to either preceding claim, wherein the modified polysaccharide is  
15 neutral or anionic.
4. A detergent composition comprising surfactant and modified polysaccharide as defined in any of claims 1-3.
- 20 5. A composition according to claim 4, wherein the amount of surfactant is from 5% to 50% by weight of the composition and the amount of modified polysaccharide is from 0.01% to 25% by weight of the composition.
6. Use of a polysaccharide gum having  $\beta_{1-4}$  linkages, to confer a benefit to a textile  
25 fabric during laundering thereof.
7. Use according to claim 6, wherein the polysaccharide is an unmodified version of a polysaccharide as defined in claim 2 or claim 3.

8. A detergent composition, comprising surfactant and a polysaccharide as defined in claim 5 or claim 6.
9. A composition according to claim 8, wherein the amount of surfactant is from 5% to 50% by weight of the composition and the amount of polysaccharide is from 0.01% to 25% by weight of the composition.